

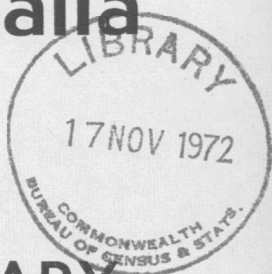
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COMMONWEALTH BUREAU OF CENSUS AND STATISTICS  
WESTERN AUSTRALIAN OFFICE

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# Statistics of Western Australia

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## NON-RURAL PRIMARY INDUSTRIES

1969-70

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DEPUTY COMMONWEALTH STATISTICIAN  
AND GOVERNMENT STATISTICIAN

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### ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded to thousands without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.



# NON-RURAL PRIMARY INDUSTRIES

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## NOTES ON STATISTICS OF MINING

### Sources of Information

The statistics relating to mining, appearing in Tables 1 and 2 of this publication are derived from annual mining census returns supplied by enterprises engaged in mining in Western Australia. Details of the quantity, value and metallic content of minerals produced, appearing in Tables 3 and 4 have been compiled by combining publishable data from the census with additional information obtained from the Department of Mines, the Department of National Development and other sources.

Commencing with 1968-69 the mining census has been conducted on an integrated basis with other economic censuses (manufacturing, electricity, gas, retail trade and wholesale trade) and this has entailed major changes in its scope and its structure. Although major characteristics of the mining census as now conducted are outlined below, reference should be made to Chapter 31 of *Official Year Book of the Commonwealth of Australia*, No. 56—1970 or to pages 552-63 of the *Western Australian Year Book*, No. 10—1971 where a more detailed description of the mining and other integrated economic censuses is given.

### Period Covered

In 1968 and earlier years, the annual mining and quarrying census related to years ended 31 December. However, commencing with 1968-69, the mining census was changed to a year ended 30 June to conform with the period covered by other integrated economic censuses in Australia.

The change in the census period from year ended 31 December to 30 June means that the 1968-69 census figures overlap the 1968 census results in regard to the period July to December 1968.

### Definitions

The statistics relating to mining in this publication are preliminary and subject to revision. For this reason, only key items of data are presented in Tables 1 and 2 of this publication for broad industry groups and selected classes. The items of data are as follows:

**Establishment.** This refers in general to a separate physical location predominantly engaged in mining.

**Number of Establishments.** The number of establishments which operated during the years 1968-69 and 1969-70. These relate to mining establishments as such and do not include the numbers of separately-located administrative offices and ancillary units.

**Persons Employed.** Working proprietors at end of June 1969 and June 1970 and employees on the pay-roll of the last pay-period in June 1969 and June 1970, including those working at separately-located administrative offices and ancillary units in the State.

Persons employed in each State (and their wages and salaries) relate to those employed at establishments, administrative offices or ancillary units located in the State, even though the administrative offices or ancillary units may have served establishments located in another State.

**Wages and Salaries.** The wages and salaries of all employees of the establishment, including those working at separately-located administrative offices and ancillary units in the State. Drawings of working proprietors are not included.

**Sales, Transfers Out and Other Operating Revenue.** Sales of minerals and other goods whether produced by the establishment or not, plus transfers out of minerals and other goods to other establishments of the same enterprise, plus all other operating revenue from outside the enterprise, such as commission, repair and service revenue. This excludes rents, leasing revenue, interest, royalties and receipts from the sale of fixed tangible assets.

**Stocks at 30 June 1968, 1969 and 1970.** All the stocks of materials, fuels, etc. and mine products and work-in-progress of the establishment whether located at the establishment or elsewhere.

**Purchases, Transfers In and Selected Expenses.** Purchases of electricity, fuels, stores and other materials, plus transfers in of goods from other establishments of the same enterprise, plus charges for processing and other commission work and payments to mining contractors, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses and sales commission payments.

**Value Added.** Sales, transfers out and other operating revenue, plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

### Principles for Measuring Output of Minerals

The quantities of individual minerals produced are recorded, in general, in the form in which the minerals are dispatched from the mine or from associated treatment works in the locality of the mine. Thus, for metallic minerals, the output is recorded as ore if no treatment is undertaken at or near the mine, and as concentrate if ore dressing operations are carried out in associated works in the locality of the mine. In addition to the basic quantity data, the content of metallic minerals (based on assay) are recorded. No allowance has been made for losses in smelting and refining and the quantities shown are therefore, in general, greater than the content actually recoverable.

The output of individual minerals is valued at the mine or at associated treatment works in the locality of the mine. This valuation is derived, in general, by valuing the quantity produced during the year at the unit selling value (including any subsidy), less any transport costs from the mine or associated treatment works at the point of sale.

It should be noted that previous issues of this publication contained values of minerals at point of sale.

No. 1—Summary of Mining Operations by Industry Sub-Division (a)

Item	Unit	Metallic minerals		Fuel minerals (b)		Construction materials		Other non-metallic minerals		Total mining	
		1968-69	1969-70	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70
Number of establishments	No.	77	72	4	4	45	52	33	36	159	164
Persons employed (c)—											
Males	No.	6,577	7,147	676	707	428	424	387	410	8,068	8,688
Females	No.	261	313	12	13	48	50	16	15	337	391
Total	No.	6,838	7,460	688	720	476	474	403	425	8,405	9,079
Wages and salaries paid....	\$'000	23,812	34,627	2,760	2,903	2,006	2,227	977	1,692	29,555	41,448
Sales, transfers out and other operating revenue	\$'000	205,602	327,807	40,066	53,409	11,500	10,452	2,923	5,990	260,091	397,658
Opening stocks (d)	\$'000	16,432	25,247	2,358	2,414	672	1,976	104	598	19,566	30,236
Closing stocks (e)	\$'000	23,993	33,381	2,415	1,624	1,711	2,701	226	1,387	28,345	39,092
Purchases, transfers in and selected expenses	\$'000	80,907	112,944	3,830	3,031	4,796	5,428	1,574	3,704	91,107	125,106
Value added	\$'000	132,256	222,997	36,693	49,588	7,744	5,749	1,275	3,075	177,968	281,409

(a) Revised preliminary data for 1968-69 and provisional estimates for 1969-70. (b) Comprises coal mining and crude petroleum including natural gas mining. (c) At 30 June; includes working proprietors. (d) At 30 June of first year shown in column heading. (e) At 30 June of second year shown in column heading.

No. 2—Summary of Mining Operations: Selected Classes (a)

Item	Unit	Gold		Iron ore		Mineral sands		Crushed and broken stone	
		1968-69	1969-70	1968-69	1969-70	1968-69	1969-70	1968-69	1969-70
Number of establishments	No.	37	33	9	10	4	4	35	40
Persons employed (b)—									
Males	No.	2,942	2,161	2,075	2,405	378	418	393	395
Females	No.	45	36	105	155	47	45	45	48
Total	No.	2,987	2,197	2,180	2,560	425	463	438	443
Wages and salaries paid	\$'000	10,126	8,750	7,673	13,810	1,311	1,634	1,909	2,144
Sales, transfers out and other operating revenue	\$'000	20,349	16,140	153,837	246,900	7,287	8,553	10,841	9,944
Opening stocks (c)	\$'000	4,095	3,878	8,119	14,783	2,396	3,111	661	1,955
Closing stocks (d)	\$'000	4,249	3,660	14,186	18,670	3,111	4,338	1,698	2,676
Purchases, transfers in and selected expenses	\$'000	6,310	5,228	63,788	90,400	2,493	3,060	4,523	5,215
Value added	\$'000	14,194	10,694	96,116	160,387	5,508	6,720	7,356	5,449

(a) Revised preliminary data for 1968-69 and provisional estimates for 1969-70. (b) At 30 June; includes working proprietors. (c) Stocks at 30 June of first year shown in column heading. (d) Stocks at 30 June of second year shown in column heading.



**No. 3—Mineral Production**  
(See note *Sources of Information* on page 4.)

Item	1968		1968-69 (a)		1969-70 (b)	
	Quantity	Value (c)	Quantity	Value (c)	Quantity	Value (c)
	tons	\$'000	tons	\$'000	tons	\$'000
Asbestos .....	67	1	.....	.....	27	1
Barytes .....	656	7	1,084	16	419	6
Bauxite .....	1,607,988	(d)	2,075,306	(d)	2,860,679	(d)
Beryl .....	14	6	10	5	(d)	(d)
Clays—all kinds (e) .....	1,073,272	636	1,192,853	891	1,331,013	999
Coal .....	1,087,379	4,817	1,102,621	4,853	1,159,101	5,407
Construction materials—						
Building and monumental stone .....	169,793	364	184,643	406	173,773	357
Crushed and broken stone .....	3,056,309	6,938	3,747,597	9,724	3,428,213	10,324
Crushed and broken limestone .....	603,737	221	867,268	363	851,933	298
Copper ore for fertiliser .....	691	45	940	113	627	74
Copper concentrate .....	(f) 4,276	(f) 914	3,353	647	3,440	795
Crude oil (g) .....	barrels		barrels		barrels	
.....	10,776,534	31,036	11,649,067	33,549	15,582,841	44,879
Felspar .....	tons		tons		tons	
.....	469	7	579	9	604	9
Gold bullion (h) .....	oz		oz		oz	
.....	765,417	19,780	668,618	18,935	542,139	15,760
Gypsum .....	tons		tons		tons	
.....	103,929	294	107,854	315	89,281	238
Iron ore .....	18,828,000	110,942	23,345,000	140,075	34,029,989	195,074
Lead concentrate .....	418	33	4,429	150	271	35
Limestone for industrial purposes(i) .....	732,523	579	831,707	587	1,511,498	1,072
Magnesite .....	166	1	.....	.....	.....	.....
Manganese ore .....	150,338	735	163,169	1,159	152,209	948
Mineral sands—						
Ilmenite .....	535,232	4,532	638,533	5,334	677,743	6,300
Leucoxene .....	1,607	70	8,730	358	9,402	420
Monazite .....	1,256	142	3,014	348	3,550	437
Rutile .....	845	64	1,260	100	2,441	232
Xenotime .....	18	45	38	76	101	119
Zircon .....	28,096	827	51,785	1,194	54,537	1,350
Natural gas .....	'000 cubic ft		'000 cubic ft		'000 cubic ft	
.....	92,922	46	143,603	72	301,605	151
Nickel concentrate .....	tons		tons		tons	
.....	36,880	(d)	51,140	(d)	157,555	(d)
Ochre .....	515	7	588	9	.....	.....
Pyrite concentrate .....	32,879	308	17,153	188	10,863	125
Salt .....	(d)	(d)	195,647	613	1,014,968	3,176
Semi-precious stones .....	(d)	8	(d)	11	(d)	37
Talc .....	(d)	(d)	29,159	413	41,388	683
Tantalite concentrate .....	lb		lb		lb	
.....	238,134	338	202,868	261	(d)	(d)
Tin concentrate .....	tons		tons		tons	
.....	895	1,630	899	1,773	895	1,914
Other (value only) (j) .....	.....	9,949	.....	12,473	.....	48,738
Total value ex-mine .....	.....	195,320	.....	235,017	.....	339,959

(a) The annual mining census (including quarrying) was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary: subject to revision. (c) Value is ex-mine. Previous issues of this publication contained value at point of sale. (d) Not available for publication. (e) Includes production of bentonite. (f) Excludes copper concentrates from nickel mining. (g) Value based on price per barrel published by Ampol Petroleum Limited. (h) Values include amounts realised by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1968, \$795,000; in 1968-69, \$2,214,000; in 1969-70, \$1,780,000. They also include Commonwealth net subsidy paid to gold producers—in 1968, \$2,621,000; in 1968-69, \$1,586,000; in 1969-70, \$1,653,000. (i) Comprises limestone used for agriculture, cement making, flux, glassmaking, lime burning and iron ore pelletising. (j) Includes those minerals for which values are not available for publication.

## No. 4—Metallic Content of Selected Minerals Produced

Metal or element	Mineral in which contained	Unit	1968	1968-69	1969-70(a)
Beryllium oxide	Beryllium ore	Unit of 22.4 lb	153	122	(b) 170
Cobalt	Nickel concentrate	ton	121	99	170
Copper	Copper concentrate	ton	963	775	(c) 692
	Copper ore	ton	.....	6	16
	Copper ore for fertiliser	ton	90	117	113
	Copper precipitate	ton	.....	.....	(d) 1,814
	Nickel concentrate	ton	538	767	1,814
Total, Copper		ton	1,591	1,665	2,635
Gold	Gold bullion	f. oz	514,820	477,739	(b) 1,385
	Copper concentrate	f. oz	1,129	1,385	(b) 1,385
	Copper precipitate	f. oz	.....	.....	(b) 1,385
	Pyrite concentrate	f. oz	.....	.....	(b) 1,385
Total, Gold		f. oz	515,949	479,124	397,135
Iron	Iron ore	'000 tons	12,157	14,872	21,514
Lead	Lead concentrate	ton	311	1,367	179
Manganese	Manganese ore	ton	69,398	75,613	76,612
Monazite content	Monazite concentrate	ton	1,130	2,803	3,309
Nickel	Nickel concentrate	ton	4,603	6,086	17,762
Palladium	Nickel concentrate	oz	.....	352	.....
Platinum	Nickel concentrate	oz	.....	519	592
Silver	Copper concentrate	f. oz	3,806	5,965	(b) 5,965
	Copper ore	f. oz	.....	.....	(b) 5,965
	Gold bullion	f. oz	183,553	160,031	(b) 160,031
	Lead concentrate	f. oz	46	64	56
	Pyrite concentrate	f. oz	.....	.....	(b) 56
Total, Silver		f. oz	187,405	166,060	128,383
Sulphur	Pyrite concentrate	ton	14,433	7,508	4,982
Tantalite	Tantalite concentrate	lb	56,179	17,645	49,232
	Tin concentrate	lb	.....	5,773	14,685
Total, Tantalite		lb	56,179	23,418	63,917
Tin	Tin concentrate	ton	624	624	609
	Tantalite concentrate	ton	.....	19	.....
Total, Tin		ton	624	643	609
Titanium dioxide	Ilmenite concentrate	ton	293,747	349,539	381,044
	Leucoxene concentrate	ton	1,444	7,748	8,304
	Rutile concentrate	ton	814	1,215	2,295
Total, Titanium dioxide		ton	296,005	358,502	391,643
Yttrium oxide	Xenotime concentrate	lb	9,500	16,312	47,187
Zirconium oxide	Zircon concentrate	ton	18,485	33,887	35,696

(a) Preliminary; subject to revision. (b) Not available for publication. (c) Includes copper content of copper precipitate. (d) Refer footnote (c).

No. 5—Mining Accident Casualties classified according to Mineral (a)  
(Source: Department of Mines)

Mineral	Number of accidents									
	1966		1967		1968		1969		1970	
	Fatal	Serious (b)	Fatal	Serious (b)	Fatal	Serious (b)	Fatal	Serious (b)	Fatal	Serious (b)
Asbestos .....	....	13	....	....	....	....	....	....	....	....
Bauxite (Alumina) .....	....	13	....	15	1	19	....	19	....	18
Coal .....	....	36	....	44	....	37	1	33	....	28
Copper .....	....	6	....	12	....	7	1	14	....	11
Gold .....	6	228	4	217	9	199	4	179	4	116
Gypsum .....	....	7	....	7	....	....	....	....	....	....
Ilmenite, etc. ....	....	1	....	....	....	14	....	12	....	12
Iron .....	1	22	1	27	3	32	3	51	4	38
Lead .....	....	1	....	1	....	1	....	....	....	....
Manganese .....	....	1	....	1	....	....	....	2	....	....
Nickel .....	1	2	....	5	....	13	2	44	2	58
Oil (production and exploration) .....	1	40	1	35	....	36	1	38	1	24
Pyrite .....	....	4	....	4	....	3	....	....	....	....
Salt .....	....	....	....	....	....	....	....	1	....	....
Tin .....	....	....	....	4	....	1	....	6	1	....
Other minerals .....	....	....	....	....	....	....	....	....	....	2
Rock quarry products .....	2	....	1	2	1	3	1	6	....	5
Total .....	11	372	7	373	14	366	13	405	12	312

(a) Comprises accidents during mining operations, related processing and transportation. (b) Under the provisions of the Mines Regulations Act, 'Serious injury shall be such as results in the injured person being disabled from following his ordinary occupation and earning his usual rate of remuneration for a period of two weeks or more'.

**No. 6—Leases, Licences, Permits, Rights, etc. in Force under the Mining Act and Special Acts**  
(Source: Department of Mines)

Particulars	At 31 December—					
	1968		1969		1970	
	Leases, etc. in force	Area of leases, etc.	Leases, etc. in force	Area of leases, etc.	Leases, etc. in force	Area of leases, etc.
	No.	acres	No.	acres	No.	acres
<i>Under the Mining Act—</i>						
<b>Gold—</b>						
Gold mining leases .....	1,032	19,299	1,184	22,868	1,375	26,308
Dredging claims .....	5	943	4	927	5	1,182
Prospecting areas .....	307	5,766	281	6,013	221	4,191
Temporary reserves .....	272	78,546	145	48,246	173	49,949
<b>Total</b> .....	<b>1,616</b>	<b>104,554</b>	<b>1,614</b>	<b>78,054</b>	<b>1,774</b>	<b>81,630</b>
<b>Coal—</b>						
Coal mining leases .....	50	14,496	51	15,645	52	15,016
Prospecting areas .....	2	124,800	2	4,320	2	4,320
Temporary reserves .....						
<b>Total</b> .....	<b>52</b>	<b>139,296</b>	<b>53</b>	<b>19,965</b>	<b>54</b>	<b>19,336</b>
<b>Other minerals—</b>						
Mineral leases .....	260	34,841	259	69,057	299	45,933
Dredging claims .....	419	34,451	468	35,765	413	32,982
Mineral claims .....	2,947	552,270	5,527	1,376,104	20,272	5,344,357
Prospecting areas .....	142	3,021	126	2,688	86	2,023
Temporary reserves .....	518	67,769,075	673	58,746,595	655	40,615,982
<b>Total</b> .....	<b>4,286</b>	<b>68,393,658</b>	<b>7,053</b>	<b>60,230,209</b>	<b>21,725</b>	<b>46,041,277</b>
<b>Other holdings—</b>						
Miners' homestead leases .....	342	34,326	340	34,620	335	33,786
Miscellaneous leases .....	114	1,763	103	1,652	102	1,660
Residence areas .....	63	63	62	61	62	50
Business areas .....	24	24	17	17	26	15
Machinery areas .....	26	72	26	72	26	78
Tailings areas .....	24	94	23	89	24	97
Garden areas .....	67	218	71	233	70	243
Quarrying areas .....	22	335	23	408	45	854
Water rights .....	145	3,135	141	3,241	141	3,210
Licences to treat tailings .....	19	....	14	....	22	....
<b>Total</b> .....	<b>846</b>	<b>40,030</b>	<b>820</b>	<b>40,393</b>	<b>853</b>	<b>39,993</b>
<b>Total under the Mining Act</b> .....	<b>6,800</b>	<b>68,677,538</b>	<b>9,540</b>	<b>60,270,602</b>	<b>24,406</b>	<b>46,182,236</b>
<i>Under Special Acts—</i>						
Bauxite .....	7	3,137,280	7	3,137,280	7	3,137,280
Iron .....	4	419,106	4	419,106	4	419,106
Salt .....	1	51,980	2	593,430	2	593,430
<b>Total under Special Acts</b> .....	<b>12</b>	<b>3,608,366</b>	<b>13</b>	<b>4,149,816</b>	<b>13</b>	<b>4,149,816</b>
<b>GRAND TOTAL</b> .....	<b>6,812</b>	<b>72,285,904</b>	<b>9,553</b>	<b>64,420,418</b>	<b>24,419</b>	<b>50,332,052</b>



**No. 7—Leases, Licences, and Permits in Force under Petroleum Acts**  
(Source: Department of Mines)

Holding	At 31 December—					
	1968		1969		1970	
	No.	Blocks (a)	No.	Blocks (a)	No.	Blocks (a)
<b>Onshore—</b>						
<i>Petroleum Act, 1936—</i>						
Permits to explore .....	30	(b)	21	13,722	....	....
Licences to prospect .....	55	(b)	7	47	....	....
Total .....	85	(b)	28	13,769	....	....
<i>Petroleum Act, 1967—</i>						
Exploration permits .....	....	....	....	....	40	5,840
Production licences .....	....	....	....	....	....	....
Petroleum lease (Barrow Is.) .....	1	8	1	8	1	8
Total .....	1	8	1	8	41	5,848
<i>Petroleum Pipelines Act, 1969—</i>						
Pipeline licence .....	....	....	....	....	1	(c)
Total .....	....	....	....	....	1	(c)
<b>Offshore—</b>						
<i>Petroleum (Submerged Lands) Act, 1967—</i>						
Exploration permits .....	11	(b)	35	11,880	35	11,880
Production licences .....	....	....	....	....	....	....
Petroleum lease (Barrow Marine) .....	1	12	1	12	1	12
Total .....	12	(b)	36	11,892	36	11,892
<b>GRAND TOTAL</b> .....	<b>98</b>	<b>(b)</b>	<b>65</b>	<b>25,669</b>	<b>78</b>	<b>17,740</b>

(a) A 'block' is a section of land 5 minutes of longitude in width and 5 minutes of latitude in length and having an average area of approximately 30 square miles but which, depending on the latitude, may range between 24 and 36 square miles. (b) Not available in terms of blocks. (c) 252.8 miles.

**No. 8—The Perth Mint (a)**  
(Source: The Perth Mint)

Year	Persons employed (b)	Expenditure				Net revenue (c)
		Salaries and wages	Allowances paid to retired staff	Other contingencies (d)	Total	
	No.	\$	\$	\$	\$	\$
1966 .....	115	414,485	16,915	203,689	635,089	668,730
1967 .....	129	444,945	14,481	145,814	605,240	657,818
1968 .....	102	381,406	17,346	75,682	474,433	493,952
1969 .....	93	370,150	20,038	74,344	464,532	472,506
1970 .....	83	374,779	12,641	98,657	486,077	474,999

Year	Gold bullion received		Gold bullion issued		Silver bullion issued		Bronze coin reduced
	Gross oz	Value (e)	Fine oz	Value (e)	Fine oz	Value	
		\$		\$		\$	\$
1966 .....	1,025,349	5,899,022	694,670	5,901,533	211,626	248,325	2,503,200
1967 .....	955,084	5,547,394	653,280	5,549,917	298,495	407,286	1,620,000
1968 .....	893,872	5,161,152	607,403	5,160,158	219,623	449,226	457,100
1969 .....	1,181,288	5,911,911	696,479	5,916,909	449,538	723,283	....
1970 .....	934,543	3,937,932	463,263	3,935,632	413,974	649,311	....

(a) Formerly a branch of the Royal Mint. Constituted as The Perth Mint from 1 July 1970 under the provisions of the *Perth Mint Act, 1970*. (b) Average over whole year. (c) Expenditure is from funds provided by the Government of Western Australia, to which net revenue of the Mint is paid. (d) Includes all capital expenditure, e.g. new machinery, etc. (e) Gold valued at \$7.7875 per standard ounce and excludes premium.

## NOTES ON STATISTICS OF MINERAL EXPLORATION

Tables 9 to 12 contain annual details of mineral exploration in Western Australia. The statistics on exploration for minerals other than petroleum, published in Tables 9 and 10 are derived from the annual mineral exploration census, which is carried out by the Bureau of Census and Statistics and which does not include exploration for petroleum and natural gas. Information given in Tables 11 and 12 relating to petroleum and gas exploration is compiled by the Bureau of Mineral Resources, Geology and Geophysics.

It should be noted that the scope of the data collected by the Bureau of Mineral Resources, Geology and Geophysics differs in some respects from the scope of the data collected by the Bureau of Census and Statistics in regard to exploration for minerals other than petroleum. The differences are mainly in definition of terms and range of data collected and there is not, therefore, complete comparability between the two series.

### Mineral Exploration Census (excluding Petroleum Exploration)

For 1968 and earlier years the annual mineral exploration census (excluding petroleum exploration) related to the years ended 31 December. As from 1968-69, the reporting period for this census has been changed to a year ended 30 June, to conform with a similar change in the annual mining census. In Table 10 a double line is drawn between columns for 1968 and 1968-69 to indicate this break in continuity of the series. It should be noted that data for the six months ended 31 December 1968 are therefore included in both the 1968 and the 1968-69 figures in this table.

For the purposes of the census, mineral exploration consists of the search for and/or appraisal of new ore occurrences and known deposits of minerals (including extensions to deposits being worked) by geological, geophysical, geochemical, and other methods (including drilling). Exploration for water is excluded. The construction of shafts and adits is included if primarily for exploration purposes. Excluded are mine development activities (which include the construction of drives, shafts, winzes, etc) in underground mines and the preparation of quarrying sites for open-cut extraction (including over-burden removal) carried out primarily for the purpose of commencing or extending mining and quarrying operations.

Information on private exploration is divided into three categories:

- (i) Private exploration on production leases, which relates to exploration carried out on production leases by privately operated mines currently producing or under development for production of minerals other than petroleum.
- (ii) Private exploration on other areas, which relates to exploration carried out on areas such as mineral claims, temporary reserves, etc. covered by authorities to enter, authorities to prospect and similar licences and authorities issued by the State Government for exploration for minerals other than petroleum.
- (iii) Other private exploration, which relates to exploration not directly connected with areas under lease, licence, etc. including general surveys, aerial surveys, report writing, map preparation and other off-site activities not directly attributable to particular lease or licence areas.

Information given in Table 9 on State Government exploration relates to exploration carried out by the Western Australian Department of Mines. Information on Commonwealth Government exploration is not available separately for States.

Definitions of terms used in Tables 9 and 10 are as follows:

**Core drilling.** Diamond drilling or any kind of drilling in which drill cores are taken.

**Non-core drilling.** Alluvial, percussion and other drilling in which drill cores are not taken.

**Shaft.** Vertical or sloping access to underground mineral deposit.

**Adit.** Horizontal or inclined access to underground mineral deposit usually from hillside.

**Drive.** A tunnel or level in (or parallel to and near) a mineral deposit.

**Winze.** Internal shaft in mine, usually connecting two levels in plane of lode.

**Costean.** A trench excavated to expose an ore deposit or to determine the direction of an ore body.

## Petroleum Exploration

For the purpose of the statistical series compiled and published by the Bureau of Mineral Resources, Geology and Geophysics, petroleum and exploration consists of the search for and/or appraisal of deposits of crude petroleum and/or gas by geological, geophysical, geochemical and other means, including drilling. Included in the expenditure are the costs of drilling exploratory oil and/or gas wells and the testing of such wells. Also included are the costs of access roads, site construction, permits, licences and similar fees, relevant office building and furniture, transportation equipment, storage facilities, plant and equipment and review work if primarily for purposes of exploration for deposits of petroleum or natural gas. The cost of drilling developmental oil and/or gas wells and expenditure on production facilities and pipelines, and production costs, etc. are excluded.

Petroleum exploration data relate to years ended 31 December.

Information on direct Government expenditure on petroleum exploration is not available separately for States and Table 11 therefore relates to private exploration only. It should be noted, however, that expenditure shown in this table includes amounts of subsidy received from the Commonwealth Government.

**No. 9—Mineral Exploration (other than for Petroleum)**  
**Expenditure, Employment, and Footage Drilled, Sunk or Driven: 1969-70**

Particulars	Private exploration				State Government exploration (b)	Total (incl. State Government)
	On production leases	On other licensed areas	Other exploration (a)	Total		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Exploration expenditure (c)—						
Salaries and wages paid ....	1,507	7,762	1,162	10,431	112	10,543
Materials used in exploration ....	1,116	5,141	504	6,761	22	6,784
Expenditure on fixed tangible assets for exploration purposes	798	5,924	276	6,999	32	7,031
Other expenses (including travelling expenses, office expenses, etc.) ....	386	13,717	1,416	15,519	6	15,525
Payments to contractors (d) ....	2,196	16,983	932	20,111	....	20,111
Total exploration expenditure ....	6,004	49,528	4,289	59,821	173	59,993
Expenditure on drilling ....	2,921	11,372	....	14,293	....	14,293
Other expenditure (e) ....	3,082	38,156	4,289	45,527	173	45,700
Employment (f)—	man-weeks	man-weeks	man-weeks	man-weeks	man-weeks	man-weeks
Professional persons (g) ....	3,296	19,574	3,386	26,256	1,176	27,432
Non-professional persons (h) ....	10,732	59,113	7,212	77,057	762	77,819
Total ....	14,028	78,687	10,598	103,313	1,938	105,251
Total footage drilled, sunk or driven—	feet	feet	feet	feet	feet	feet
Drilled—						
Core ....	335,235	844,985	....	1,180,220	....	1,180,220
Non-core ....	467,420	4,628,395	....	5,095,815	....	5,095,815
Total ....	802,655	5,473,380	....	6,276,035	....	6,276,035
Sunk or driven—						
Shafts, winzes, etc. ....	(i)	(i)	....	3,526	....	3,526
Adits, drives, etc. ....	(i)	(i)	....	4,036	....	4,036
Costeans, small pits, etc. ....	(i)	(i)	....	60,471	....	60,471
Total ....	37,587	30,446	....	68,033	....	68,033

(a) Not attributable to particular lease or licence areas. (b) Exploration by the Western Australian Department of Mines only. (c) Expenditure whether charged as working expenses or capitalised. (d) Amounts paid to drilling contractors, geological consultants, technical advisers, etc. for exploration services. (e) Includes expenditure on geological work and on adits, shafts, etc. (f) Comprises the operator and his staff only; includes time spent on report writing and similar off-site activities associated with exploration; excludes contractors and their employees. (g) Geologists, geophysicists, engineers, etc. engaged in exploration work. (h) Drill operators, field hands, etc. (i) Not available for publication.

**No. 10—Private Mineral Exploration (other than for Petroleum) (a)**  
**Expenditure, Employment, and Footage Drilled, Sunk or Driven**

Particulars	Unit	1966	1967	1968	1968-69 (b)	1969-70
Expenditure (c)—						
On drilling	\$'000	2,225	3,313	6,467	10,464	14,293
Other (d)	\$'000	4,309	6,890	16,681	24,948	45,527
Total	\$'000	6,534	10,203	23,148	35,412	59,821
Payments to contractors (e)	\$'000	1,762	3,159	7,586	13,661	20,111
Employment (f)—						
Professional persons (g)	man-week	6,340	13,780	14,463	18,336	26,256
Non-professional persons (h)	man-week	16,878	23,839	38,374	49,338	77,057
Total	man-week	23,218	37,619	52,837	67,674	103,313
Footage drilled, sunk or driven—						
Drilled—						
Core	foot	319,393	361,668	714,829	999,148	1,180,220
Non-core	foot	310,232	537,474	1,030,282	1,371,813	5,095,815
Total	foot	629,625	899,142	1,745,111	2,370,961	6,276,035
Sunk or driven (i)	foot	9,911	7,952	22,720	121,590	68,033

(a) Excludes exploration by the Western Australian Department of Mines and the Commonwealth Bureau of Mineral Resources, Geology and Geophysics. (b) The annual mineral exploration census was changed to a fiscal year basis, commencing with the year ended 30 June 1969. (c) Expenditure whether charged as working expenses or capitalised. Includes payments to contractors. (d) Includes expenditure on geological work and on adits, shafts, etc. (e) Amounts paid to drilling contractors, geological consultants, technical advisers, etc. for exploration services. Included in preceding figures. (f) Comprises the operator and his staff only; includes time spent on report writing and similar off-site activities associated with exploration; excludes contractors and their employees. (g) Geologists, geophysicists, engineers, etc. engaged in exploration work. (h) Drill operators, field hands, etc. (i) Includes shafts, winzes, etc. sunk; drives, adits, etc. driven and costeans, small pits, etc.

**No. 11—Private Petroleum Exploration: Expenditure and Source of Funds**  
 (Source: Bureau of Mineral Resources, Geology and Geophysics)  
 (\$'000)

Particulars	1966	1967	1968	1969	1970
Private expenditure (a)—					
Geological	482	1,159	449	516	801
Geophysical	17,070	7,282	6,026	6,684	8,876
Drilling	747	6,397	17,463	23,847	21,771
Other		390	1,621	1,432	2,714
Total	18,300	15,229	25,560	32,480	34,161
Source of funds—					
Private sources	14,945	11,788	21,532	26,194	29,557
Government subsidy (b)	3,355	3,441	4,027	6,286	4,604

(a) Includes expenditure financed by payments under the *Petroleum Search Subsidy Act* 1959-1969 (Commonwealth).  
 (b) Comprises payments under the *Petroleum Search Subsidy Act* 1959-1969.

**No. 12—Petroleum Exploration: Summary of Wells and Footage Drilled (a)**  
 (Source: Bureau of Mineral Resources, Geology and Geophysics)

Particulars	1966	1967	1968	1969	1970
Wells drilled (b)	37	194	127	206	63
Average total depth of wells drilled (c)	6,449	5,444	5,832	7,500	6,654
Wells completed as potential oil producers	12	164	53	97	13
Wells completed as potential gas producers	5	2	1	7	2
Wells drilled or drilling over 10,000 ft	7	4	5	9	5
Footage drilled—					
Completed wells	178,681	561,324	406,189	636,818	217,347
Uncompleted holes (d)	21,448	7,714	30,811	10,871	28,737
Total footage drilled	200,129	569,038	437,000	647,689	246,084

(a) With the exception of 'Average total depth of wells drilled' for 1967, 1968 and 1969 the data include particulars for developmental wells. (b) Number of holes which reached total depth during the year. (c) See footnote (a).  
 (d) Comprises wells suspended and wells on which drilling was in progress at 31 December of the year shown.



## FISHERIES (INCLUDING PEARLING AND WHALING)

NOTE. Catch and effort data contained in Tables 13 to 23 are compiled by the Western Australian Office of the Commonwealth Bureau of Census and Statistics from monthly returns collected by the Western Australian Department of Fisheries and Fauna from licensed commercial fishermen. Data relating to activities of amateur fishermen are not included.

Details of the value of fish, crustaceans and molluscs caught have been compiled by the Western Australian Office of the Bureau of Census and Statistics using data obtained from fish dealers, fish processors and fishermen's co-operatives. The values shown represent gross value paid to fishermen.

No. 13—Fish, Crustaceans and Molluscs: Catch and Value (a)

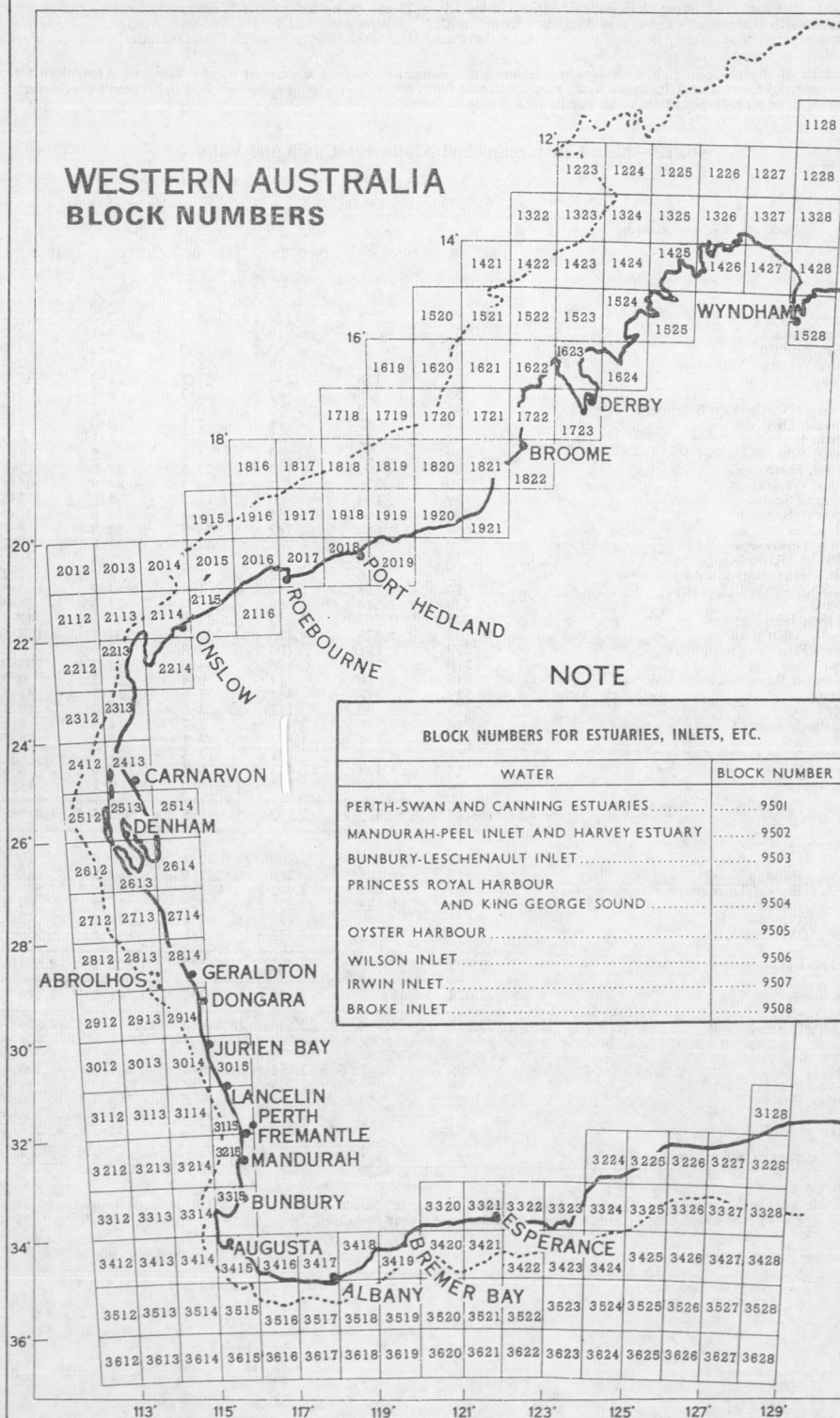
Species—Common name	Quantity ('000 lb)			Value (\$'000)		
	1967-68	1968-69	1969-70	1967-68	1968-69	1969-70
<b>Fish—</b>						
Anchovy (Whitebait) .....	62	76	114	6.2	7.6	17.1
Bream, Black .....	33	23	10	6.5	4.1	2.2
Bream, Buffalo .....	28	26	60	2.0	3.2	3.0
Bream, Western Yellowfin .....	35	22	19	3.7	1.3	2.4
Cobbler .....	155	158	234	27.1	21.3	37.7
Cod .....	35	38	42	5.3	6.2	5.1
Emperor (North-West Snapper) .....	1	9	54	0.2	1.2	7.5
Flathead, Dusky .....	18	17	15	2.1	2.0	1.8
Garfish, Sea .....	39	37	44	5.7	4.3	6.1
Groper, Blue, Brown or Red .....	29	21	33	4.6	3.5	4.2
Herring, Perth .....	424	492	183	23.6	37.0	12.8
Jewfish, Western .....	230	226	301	79.3	84.9	105.4
Mackerel, Scaly .....	89	104	60	11.5	5.9	3.6
Mackerel, Spanish .....	200	165	131	34.7	28.6	21.0
Mullet, Sea .....	654	689	782	73.3	80.9	78.2
Mullet, Yellow-eye .....	730	577	764	43.7	51.0	61.2
Mulloway (River Kingfish) .....	26	26	13	2.2	1.8	1.0
Perch, Giant (Barramundi) .....	12	16	22	1.6	2.2	1.2
Pike, Short-finned (Snook) .....	14	18	17	1.4	3.7	3.8
Pilchard .....	438	244	309	29.0	22.6	27.8
Ruff (Sea Herring) .....	745	1,363	1,353	21.5	47.3	47.3
Salmon, Australian .....	10,502	5,576	4,713	397.1	204.7	188.5
Samson Fish (Sea Kingfish) .....	78	101	100	7.8	12.6	9.8
Shark .....	710	763	826	104.6	92.0	104.0
Skates and Rays .....	16	16	11	0.4	0.3	0.3
Snapper .....	559	313	455	73.6	53.2	61.9
Tailor .....	79	80	112	8.6	9.7	10.1
Trevally (Skipjack) .....	48	46	45	8.7	4.7	4.1
Tuna .....	144	714	1,122	14.1	35.9	78.5
Whiting, King George .....	58	73	131	17.3	21.9	23.5
Whiting, Western Sand .....	458	309	425	71.4	57.6	76.6
Other species .....	98	86	94	10.6	9.1	11.2
<b>Total Fish</b> .....	<b>16,747</b>	<b>12,425</b>	<b>12,592</b>	<b>1,099.5</b>	<b>922.3</b>	<b>1,018.8</b>
<b>Crustaceans—</b>						
Crabs .....	68	61	68	12.4	9.9	17.8
Prawns—Banana .....	813	187	260	277.9	69.5	88.4
Brown Tiger (b) .....	1,881	1,625	2,942	803.5	783.8	1,529.6
Endeavour .....	36	81	258	9.2	31.8	80.0
Green-tail .....	125	69	157	62.4	34.5	42.5
Western King .....	1,007	1,862	1,875	412.6	882.5	956.1
<b>Total Prawns</b> .....	<b>3,862</b>	<b>3,823</b>	<b>5,492</b>	<b>1,565.7</b>	<b>1,802.1</b>	<b>2,696.6</b>
Rock lobsters .....	22,024	18,030	15,335	16,862.7	17,801.2	12,114.9
<b>Total Crustaceans</b> .....	<b>25,955</b>	<b>21,914</b>	<b>20,896</b>	<b>18,440.8</b>	<b>19,613.3</b>	<b>14,829.3</b>
<b>Molluscs—</b>						
Scallops .....	55	267	2,862	8.4	21.3	200.4
Abalone .....	9	(c)	38	2.4	(c)	7.5
Other molluscs .....	29	40	39	6.5	9.9	6.4
<b>Total Molluscs</b> .....	<b>93</b>	<b>307</b>	<b>2,939</b>	<b>17.3</b>	<b>31.2</b>	<b>214.2</b>
<b>TOTAL, WESTERN AUSTRALIA (a)</b> .....	<b>...</b>	<b>...</b>	<b>...</b>	<b>19,557.6</b>	<b>20,566.6</b>	<b>16,062.3</b>

(a) Excludes aquatic reptiles, details of which are not available for publication.

(b) Previously known as 'Tiger Prawn'.

(c) Not available for publication; included in 'Other molluscs'.

# WESTERN AUSTRALIA BLOCK NUMBERS



No. 14—Fish and Crustaceans: Catch by Fishing Blocks (a): 1969-70  
(’000 lb)

Block number	Fish	Crabs	Prawns	Rock lobsters	Total
1528	18	...	...	...	18
1822	50	...	...	...	50
1919	8	...	11	...	19
2013	...	...	...	19	19
2015	28	...	...	...	28
2016	25	...	31	...	56
2017	(b)	...	176	...	176
2114	22	...	513	...	534
2213	133	...	...	...	133
2214	3	...	1,595	1	1,598
2412	102	...	...	...	102
2413	19	...	352	7	378
2512	70	...	24	1	95
2513	507	...	2,475	...	2,982
2613	303	...	...	50	354
2614	...	...	...	26	26
2712	...	...	...	44	44
2713	(b)	...	...	261	261
2714	9	...	...	163	172
2812	(b)	...	...	25	26
2813	98	...	21	3,003	3,122
2814	12	...	...	1,509	1,520
2913	...	...	...	125	125
2914	57	...	105	3,014	3,176
3014	101	...	...	2,496	2,597
3015	4	...	...	464	468
3114	2	...	...	350	352
3115	413	(b)	2	2,939	3,354
3214	6	...	...	26	32
3215	447	5	14	640	1,106
3313	27	...	...	...	27
3314	391	...	...	43	434
3315	846	7	...	65	917
3322	64	...	...	...	64
3414	8	...	...	20	28
3415	410	...	...	5	414
3417	504	(b)	...	...	504
3418	2,911	...	...	...	2,911
3419	934	...	...	...	934
3516	197	...	...	...	197
3517	1,293	...	...	...	1,293
3518	557	...	...	...	557
3618	32	...	...	...	32
9501	462	5	2	...	470
9502	634	27	137	...	799
9503	152	18	1	...	171
9504	381	(b)	...	...	381
9505	81	(b)	...	...	81
9506	112	5	...	...	117
9508	27	...	...	...	27
Other blocks	132	(b)	34	40	207
TOTAL, WESTERN AUSTRALIA	12,592	68	5,492	15,335	33,487

(a) The geographical location of the fishing blocks is shown in the map on page 16.

(b) Less than 500 lb.

No. 15—Fish and Crustaceans: Catch by Fishing Locality (a): 1969-70  
(‘000 lb)

Fishing locality	Fish	Crabs	Prawns	Rock lobsters	Total
Esperance ....	283	....	....	3	287
Doubtful Island ....	130	....	....	....	130
Bremer Bay ....	675	....	....	....	675
Cheyne Beach ....	1,302	....	....	....	1,302
Two Peoples Bay ....	70	....	....	....	70
Betty's Bay ....	249	....	....	....	249
Nanarup ....	424	....	....	....	424
Albany ....	2,705	(b)	....	....	2,705
Torbay ....	568	(b)	....	....	568
Wilson Inlet ....	280	5	....	....	285
Parry Inlet ....	148	....	....	....	148
Peaceful Bay ....	171	....	....	....	171
Hardy Inlet ....	172	(b)	....	....	172
Hamelin Bay ....	292	....	....	12	304
Margaret River ....	19	....	....	53	71
Quindalup ....	201	....	....	(b)	202
Busselton ....	643	....	....	7	650
Bunbury ....	493	24	....	61	577
Mandurah ....	885	29	149	112	1,176
Safety Bay ....	33	....	....	198	231
Rockingham ....	12	(b)	....	54	66
Perth ....	444	5	2	3	455
Fremantle ....	509	4	5	1,711	2,229
Whitfords Beach ....	32	....	....	26	59
Quinns ....	4	....	....	52	57
Yanchep ....	15	....	....	167	182
Wreck Point ....	7	....	....	156	164
Cape Leschenault ....	22	1	....	341	364
Ledge Point ....	3	....	....	427	431
Lancelin ....	16	....	....	1,022	1,038
Wedge Island ....	(b)	....	....	103	103
Green Island ....	1	....	....	202	203
Cervantes Island ....	17	....	....	633	650
Jurien Bay ....	52	....	....	1,172	1,224
Green Head ....	4	....	....	490	494
Snag Island ....	7	....	....	519	526
Beagle Island ....	(b)	....	....	290	290
Freshwater Point ....	(b)	....	....	423	424
Port Denison ....	46	....	....	1,599	1,645
Seven-Mile Beach ....	....	....	....	159	159
Geraldton ....	11	....	....	1,432	1,443
Pelsart Island ....	25	....	....	522	548
Easter Island ....	1	....	....	1,028	1,029
Wallabi Island ....	12	....	....	867	879
North Island ....	10	....	....	590	600
Drummond Cove ....	(b)	....	....	75	75
Coronation Beach ....	....	....	....	73	73
Horrocks Beach ....	1	....	....	74	76
Port Gregory ....	4	....	....	85	89
Murchison River ....	9	....	....	471	480
Denham ....	979	....	1,503	34	2,516
Carnarvon ....	60	....	1,473	7	1,535
Cape Cuvier ....	52	....	....	....	59
Exmouth Gulf ....	104	....	2,113	1	2,217
Point Samson ....	48	....	196	....	244
Other localities ....	337	(b)	51	77	465
TOTAL, WESTERN AUSTRALIA ....	12,592	68	5,492	15,335	33,487

(a) Fishing locality is the anchorage from which the fishermen operate.

(b) Less than 500 lb.



## No. 16—Catch and Effort in Haul Netting and Beach Seining: 1969-70

Month	Catch	Man-days worked	Catch per man-day	Boat-days	Catch per boat-day	Men engaged	Catch per man	Boats engaged	Catch per boat
	lb	No.	lb	No.	lb	No.	lb	No.	lb
1969—									
July .....	271,357	2,759	98	2,049	132	168	1,615	122	2,224
August .....	209,490	2,482	84	1,794	117	167	1,254	122	1,717
September .....	199,053	2,684	74	1,872	106	160	1,244	114	1,746
October .....	191,944	2,585	74	1,858	103	156	1,230	114	1,684
November .....	231,973	3,156	74	2,197	106	176	1,318	126	1,841
December .....	214,521	3,091	69	2,187	98	183	1,172	131	1,638
1970—									
January .....	314,490	3,614	87	2,484	127	196	1,605	138	2,279
February .....	593,630	3,948	150	2,483	239	231	2,570	148	4,011
March .....	3,019,248	7,369	410	3,189	947	326	9,261	160	18,870
April .....	1,751,142	5,727	306	3,038	576	282	6,210	164	10,678
May .....	512,430	3,776	136	2,606	197	214	2,395	147	3,486
June .....	486,609	3,072	158	2,125	229	181	2,688	126	3,862

## No. 17—Catch and Effort in Hand Lining for Snapper: 1969-70

Month	Catch	Men engaged	Catch per man	Boats engaged	Catch per boat
	lb	No.	lb	No.	lb
1969—					
July .....	19,313	11	1,756	7	2,759
August .....	4,077	7	582	5	815
September .....	2,113	5	423	4	528
October .....	1,944	7	278	4	486
November .....	4,036	11	367	7	577
December .....	2,521	8	315	5	504
1970—					
January .....	1,316	8	165	5	263
February .....	1,696	9	188	6	283
March .....	4,043	10	404	6	674
April .....	10,083	13	776	7	1,440
May .....	13,025	9	1,447	6	2,171
June .....	23,678	14	1,691	8	2,960

## No. 18—Catch and Effort in Pot Fishing for Rock Lobsters: 1969-70

Month	Catch	Potlifts	Catch per potlift	Boat-days	Catch per boat-day	Men engaged	Catch per man	Boats engaged	Catch per boat
	lb	No.	lb	No.	lb	No.	lb	No.	lb
1969—									
July .....	599,998	461,838	1.2	6,633	90	879	683	443	1,354
August .....	233,982	180,789	1.2	2,639	89	641	365	325	720
September .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
November .....	1,106,633	761,857	1.4	8,615	128	1,848	599	767	1,443
December .....	4,215,079	1,716,272	2.4	18,778	224	1,964	2,146	817	5,159
1970—									
January .....	1,808,406	1,089,903	1.6	12,225	148	1,803	1,003	772	2,342
February .....	1,010,824	863,154	1.1	9,906	102	1,466	690	639	1,582
March .....	2,592,489	1,261,989	2.0	14,784	175	1,654	1,567	751	3,452
April .....	2,382,782	1,137,251	2.0	13,738	173	1,474	1,617	695	3,428
May .....	905,305	645,519	1.4	8,676	104	1,050	862	537	1,686
June .....	456,295	359,768	1.2	5,236	87	741	616	409	1,116

No. 19—Catch and Effort in Trawling for Prawns (a): 1969-70

Month	Catch	Shots	Catch per shot	Boat-hours	Catch per boat-hour	Boat-days	Catch per boat-day	Men engaged	Catch per man	Boats engaged	Catch per boat
	lb	No.	lb	No.	lb	No.	lb	No.	lb	No.	lb
1969—											
July .....	483,998	5,482	88	8,876	55	820	590	127	3,811	39	12,410
August .....	296,428	3,243	91	5,776	51	499	594	99	2,994	29	10,222
September .....	155,144	1,289	120	2,893	54	247	628	55	2,821	16	9,697
October .....	120,697	1,162	104	2,437	50	250	483	44	2,743	15	8,046
November .....	45,182	460	98	1,196	38	114	396	23	1,964	7	6,455
December .....	1,460	26	56	90	16	9	162	7	209	2	730
1970—											
January .....	49,412	749	66	961	51	89	555	24	2,059	6	8,235
February .....	220,624	3,029	73	3,731	59	331	667	90	2,451	23	9,592
March .....	759,941	5,681	134	8,849	86	791	961	167	4,551	44	17,274
April .....	1,165,094	7,959	146	12,925	91	1,145	1,018	212	5,496	57	20,440
May .....	1,038,461	7,745	134	12,281	92	1,111	935	223	4,657	59	17,603
June .....	1,000,639	7,815	128	12,589	93	1,155	866	233	4,295	62	16,139

(a) The distribution of effort data has been estimated for those boats which caught both prawns and scallops in the same month.

No. 20—Catch and Effort in Trawling for Scallops (a): 1969-70

Month	Catch	Shots	Catch per shot	Boat-hours	Catch per boat-hour	Boat-days	Catch per boat-day	Men engaged	Catch per man	Boats engaged	Catch per boat
	lb	No.	lb	No.	lb	No.	lb	No.	lb	No.	lb
1969—											
July .....	471,076	2,195	215	1,830	257	184	2,560	32	14,721	10	47,108
August .....	632,358	1,425	444	737	858	137	4,616	45	14,052	13	48,643
September .....	644,740	1,197	539	488	1,321	115	5,606	55	11,723	16	40,296
October .....	631,952	1,016	622	602	1,050	101	6,257	28	22,570	8	78,994
November .....	153,617	436	352	228	674	25	6,145	11	13,965	3	51,206
December .....	18,500	63	294	76	243	5	3,700	5	3,700	2	9,250
1970—											
January .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
March .....	(b) 128	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
April .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May .....	(b) 100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
June .....	245,637	1,232	199	645	381	73	3,365	22	11,165	5	49,127

(a) The distribution of effort data has been estimated for those boats which caught both prawns and scallops in the same month. was insignificant separate effort data has not been calculated for scallops.

(b) Caught by boats also catching prawns. As catch of scallops

**No. 21—Fish and Crustaceans: Catch by Method: 1969-70**  
(<sup>1</sup>000 lb)

Particulars	Haul net and beach seining	Handlining (a)	Trawling	Pot fishing for rock lobsters	Other methods	Total
Fish .....	7,824	88	....	....	4,680	12,592
Crabs .....	46	....	....	....	23	68
Prawns .....	119	....	5,335	....	38	5,492
Rock lobsters .....	....	....	....	15,312	23	15,335
Total .....	7,988	88	5,335	15,312	4,764	33,487

(a) Snapper only. Catch of other species by hand-lining is included in 'Other methods'.

**No. 22—Whaling (a)**

Particulars	1966	1967	1968	1969	1970
Sperm whales taken .....	606	587	658	679	799
Oil produced (b) .....	4,042	3,738	3,912	4,357	5,281

(a) Figures have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry. (b) 1 ton = 6 barrels (approximately).

**No. 23—Pearl and Pearl-shell Fisheries**  
(excluding Pearl Culture)

(Source: Department of Fisheries and Fauna)

Particulars	Year ended 31 December—				
	1966	1967	1968	1969	1970
Vessels operating—					
Number .....	13	14	13	12	11
Aggregate tonnage .....	301	332	319	296	259
Value (including equipment) .....	\$ 106,000	123,500	124,000	174,000	171,000
Number of persons engaged .....	123	132	119	107	122
Pearl-shell and pearls produced—					
Pearl-shell—					
Quantity .....	tons 185	221	212	246	212
Value .....	\$ *290,443	354,845	333,008	370,561	407,262
Value of pearls .....	\$ 1,329	4,200	1,050	336	6,037

\* Revised.

## FORESTRY

## No. 24—Area under Forest, Production, and Employment

Particulars	1965-66	1966-67	1967-68	1968-69	1969-70
Area under forest—					
Exploitable areas—	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres
Natural forest .....	7,119	7,071	7,071	7,065	7,050
Plantations—					
Coniferous .....	47	51	56	62	69
Broadleaved .....	19	19	19	19	19
Other areas (a) .....	2,279	2,338	2,329	2,358	2,332
Total, Area under forest .....	9,463	9,479	9,475	9,504	9,470
Areas reserved as forest—					
State forests .....	4,449	4,449	4,451	4,456	4,461
Timber reserves—					
Under Forests Act .....	1,860	1,860	1,865	1,866	1,863
Under Land Act .....	726	684	672	672	667
Total, Areas reserved as forest .....	7,035	6,993	6,988	6,994	6,990
Production—					
Logs for sawing, peeling, slicing, etc.—	'000 cu ft	'000 cu ft	'000 cu ft	'000 cu ft	'000 cu ft
Forest broadleaves .....	49,814	48,373	49,553	43,188	42,877
Plantation-grown pines .....	2,149	2,057	2,413	2,874	2,924
Hewn and other timber .....	25,137	25,209	25,738	26,483	26,845
Employment (b)—					
Forests Department employment—	number	number	number	number	number
Foresters .....	46	53	52	51	51
Extraction (c) .....	38	39	40	37	35
Other .....	835	843	903	919	841
Other forest employment—					
Extraction (c) .....	1,113	1,131	1,078	910	958
Other .....	399	420	397	150	450
Total, Employment .....	2,431	2,486	2,470	2,067	2,335

(a) Includes all other forested lands under government control, e.g. Flora and Fauna Reserves, Scenic Reserves, National Parks, etc. (b) Excludes employment in private and government-operated sawmills. (c) Felling, carting, etc.



## VALUE OF PRIMARY PRODUCTION (excluding Mining and Quarrying)

### DEFINITIONS OF TERMS USED

*Gross Value* is the value placed on recorded production at the wholesale price realised at the principal market. In cases where primary products are consumed at the place of production or where they become raw material for a secondary industry, these points of consumption are taken as the principal markets.

*Marketing Costs* comprise freight, cost of containers, commission, and other charges incurred in marketing.

*Local Value* is the value recorded at the place of production, and is obtained by deducting *Marketing Costs* from *Gross Value*.

*Cost of Goods Consumed in the Process of Production* covers seed and fertilisers used, pickling, sprays, dips, fodder consumed, fuel and oil, and other selected costs of a similar nature.

*Net Value* represents the return to the producer (farmer, pastoralist, fisherman, etc) and is the sum available for payment of wages, interest, rent, depreciation, other overhead costs, and for the producer's own income. It is obtained by deducting from *Local Value* the *Cost of Goods Consumed in the Process of Production*.

*Gross* and *Local Values* of primary production involve some duplication as they include the products of certain primary industries which are consumed as raw materials by other industries in the group (e.g. hay consumed by livestock). Furthermore, many of the materials consumed by primary industries are the products of secondary industry. However, duplication has been eliminated in calculating the *Net Value* of primary production by deducting the cost of both primary and secondary products consumed by primary industries. Therefore, *Net Value* of primary production should be used when comparing or combining values for primary industries with values for secondary industries.

### MINING AND QUARRYING

Estimates of mining and quarrying values, as previously compiled and published in this bulletin for calendar years up to and including 1968, have been discontinued. They have been replaced by information obtained on a fiscal year basis in the 1968-69 integrated economic censuses (of which mining and quarrying form a sector) and subsequent censuses of mining and quarrying. Values derived from the 1968-69 and subsequent censuses are not directly comparable with figures for previous years because of changes in the census units, the scope of the census and the items of data.

Particulars of mining and quarrying activity derived from the 1968-69 and 1969-70 economic censuses, together with explanatory notes, are given in the first section of this publication.

## No. 25—Value of Primary Production (excluding Mining and Quarrying) (a)

Season or year	Gross Value (based on principal market prices) \$	Marketing costs \$	Local Value (at source of production) \$	Goods consumed in process of production \$	Net Value \$
Fishing (b)					
1965-66	15,732,746	49,794	15,682,952	1,205,000	14,477,952
1966-67	16,524,818	56,022	16,468,796	1,494,000	14,974,796
1967-68	21,953,744	148,367	21,805,377	1,386,000	20,419,377
1968-69	23,717,218	117,547	23,599,671	1,361,000	22,238,671
1969-70	19,659,550	123,550	19,536,000	1,547,000	17,989,000
Forestry (exclusive of Milling)					
1965-66	12,731,028	765,769	11,965,259	(c)	11,965,259
1966-67	13,299,922	827,161	12,472,761		12,472,761
1967-68	14,076,244	802,974	13,273,270		13,273,270
1968-69	13,464,694	873,930	12,590,764		12,590,764
1969-70	13,631,997	836,524	12,795,473		12,795,473
Hunting					
1965-66	835,775	173,332	662,443	(c)	662,443
1966-67	986,286	227,855	758,431		758,431
1967-68	1,235,957	335,859	900,098		900,098
1968-69	1,210,521	397,861	812,660		812,660
1969-70	1,098,386	328,284	770,102		770,102
Total Fishing, Forestry and Hunting					
1965-66	29,299,549	988,895	28,310,654	1,205,000	27,105,654
1966-67	30,811,026	1,111,038	29,699,988	1,494,000	28,205,988
1967-68	37,265,945	1,287,200	35,978,745	1,386,000	34,592,745
1968-69	38,392,433	1,389,338	37,003,095	1,361,000	35,642,095
1969-70	34,389,933	1,288,358	33,101,575	1,547,000	31,554,575
Rural Industries (d)					
1965-66	406,097,272	42,557,649	363,539,623	62,347,126	301,192,497
1966-67	411,084,466	43,425,630	367,658,836	72,590,019	295,068,817
1967-68	428,258,211	49,782,104	378,476,107	82,672,778	295,803,329
1968-69	468,224,373	54,842,205	413,382,168	90,776,042	322,606,126
1969-70	373,583,875	46,100,078	327,483,797	94,755,077	232,728,720
Total Primary (excluding Mining and Quarrying)					
1965-66	435,396,821	43,546,544	391,850,277	63,552,126	328,298,151
1966-67	441,895,492	44,536,668	397,358,824	74,084,019	323,274,805
1967-68	465,524,156	51,069,304	414,454,852	84,058,778	330,396,074
1968-69	506,616,806	56,231,543	450,385,263	92,137,042	358,248,221
1969-70	407,973,808	47,388,436	360,585,372	96,302,077	264,283,295

(a) See letterpress on page 23. (b) Includes pearling and whaling. (c) Not available. (d) Comprises agriculture, bee keeping, dairying, pastoral industry and poultry farming.

Issued by the Deputy Commonwealth Statistician and Government Statistician,  
1-3 St George's Terrace, Perth

## PRINTED PUBLICATIONS

Title of Publication	Latest issue at 30 September 1972	Month of issue	Price	
			Excluding postage	Including postage (a)
WESTERN AUSTRALIAN YEAR BOOK	No. 10, 1971	Aug. 1971	\$ 1.00	\$ 1.61
WESTERN AUSTRALIAN POCKET YEAR BOOK (b)	No. 54, 1972	Sept. 1972	0.20	0.27
QUARTERLY STATISTICAL ABSTRACT	June 1972	June 1972	0.20	0.27
STATISTICS OF WESTERN AUSTRALIA (Annual): (c)				
Building and Housing (b)	1970-71	Sept. 1972	0.30	0.37
Demography (b)	1969	Feb. 1972	0.40	0.52
Finance	1970-71	Aug. 1972	0.40	0.47
Labour and Prices	1971	Sept. 1972	0.60	0.67
Local Government (b)	1969-70	July 1972	0.50	0.57
Non-Rural Primary Industries	1968-69	May 1971	0.20	0.27
Rural Industries (b)	1969-70	June 1972	1.10	1.34
Social Statistics (b)	1970	May 1972	0.30	0.42
Summary from 1829	1829-1971	Sept. 1972	0.20	0.27
Trade (overseas and interstate)	1970-71	Aug. 1972	1.40	1.75 (d)
Transport and Communication	1968-69	Apr. 1972	0.30	0.37
ABSTRACT OF STATISTICS OF LOCAL GOVERNMENT AREAS (Annual) (b)	1972	June 1972	0.50	0.68

(a) Within Australia and to Christmas Island, Cocos Island, Lord Howe Island, Norfolk Island, Nauru and Papua-New Guinea. (b) Includes statistics for individual local government areas. (c) Replaces the *Statistical Register of Western Australia* for 1968-69 and subsequent years. (d) Within 30 miles of the General Post Office, Perth. Elsewhere in Western Australia and to Cocos Island and Christmas Island, postage is 45 cents; to South Australia and Northern Territory, 65 cents; to Victoria, 75 cents; elsewhere in Australia, etc., 85 cents.

## MIMEOGRAPHED PUBLICATIONS

(Available free of charge on application)

Subject	Frequency of issue	Latest issue at 30 September 1972	Month of issue
ACCIDENTS—			
Industrial Accidents	Annually	1970-71	Jan. 1972
Road Traffic Accidents involving Casualties	Quarterly	June qr 1972	Sept. 1972
Road Traffic Accidents involving Casualties (a)	Annually	1971	Aug. 1972
BUILDING—			
Building Operations (a)	Quarterly	June qr 1972	Sept. 1972
Building Permits and Approvals (a)	Monthly	Aug. 1972	Sept. 1972
Number of New Houses and Flats (preliminary estimates)	Quarterly	June qr 1972	July 1972
EMPLOYMENT—			
Wage and Salary Earners in Civilian Employment	Annually	June 1966 to June 1972	Sept. 1972
FINANCE—			
Fire, Marine and General Insurance Statistics	Annually	1970-71	Jan. 1972
Local Government Finance Statistics	Annually	1969-70	Jan. 1972
Local Government Revenue and Expenditure: Budget Estimates (a)	Annually	1971-72	Jan. 1972
MOTOR VEHICLES—			
Motor Vehicle Registrations	Monthly	July 1972	Sept. 1972
Motor Vehicle Registrations (a)	Annually	1969	Aug. 1970
POPULATION AND VITAL STATISTICS—			
Divorce	Annually	1971	June 1972
Hospital In-patient Statistics (†)	Annually	1971	Aug. 1972
Intercensal Changes in Population (a)	Irregular	1961-1966	June 1968
Population and Occupied Dwellings: Censuses, 1911 to 1966 (a)	Irregular	1911 to 1966	Feb. 1968
Population, Dwellings and Vital Statistics (Local Government Areas and Statistical Divisions) (a)	Annually	1966-1970	Jan. 1971
Projections of the Population	Irregular	1967 to 1976	Feb. 1969

continued on next page

## STATISTICAL PUBLICATIONS—continued

## MIMEOGRAPHED PUBLICATIONS—continued

Subject	Frequency of issue	Latest issue at 30 September 1972	Month of issue
<b>PRIMARY PRODUCTION—</b>			
Agricultural and Pastoral Statistics (general summary) ....	Annually	1970-71	Sept. 1971
Agricultural Census: Principal Statistics (preliminary statement) ....	Annually	1971-72	Aug. 1972
Apples and Pears in Cool Stores ....	Monthly	Aug. 1972	Sept. 1972
Artificial Fertiliser Used on Rural Holdings (a) ....	Annually	1970-71	Oct. 1971
Bee Keeping Statistics ....	Annually	1970-71	Oct. 1971
Catch of Fish and Crustaceans ....	Monthly	Mar. 1972	Sept. 1972
Cattle and Pigs (a) ....	Annually	1972	Sept. 1972
Cereal Crop Forecast ....	Annually	1971-72	Oct. 1971
Chicks Hatched and Poultry Slaughtered ....	Monthly	June 1972	Aug. 1972
Ewe Matings for Lambing ....	Triennially	1969 and 1970	Feb. 1971
Fisheries ....	Annually	1970-71	Aug. 1972
Fruit (a) ....	Annually	1970-71	Nov. 1971
Grain and Other Crops and Cereal Varieties (a) ....	Annually	1970-71	Sept. 1971
Grain and Seed Harvesters on Rural Holdings (a) ....	Triennially	1970	Mar. 1971
Hay, Green Feed and Silage (a) ....	Annually	1970-71	Oct. 1971
Irrigation (a) ....	Annually	1970-71	Oct. 1971
Livestock Slaughtered and Meat Produced ....	Annually	1970-71	Dec. 1971
Machinery on Rural Holdings (a) ....	Annually	1971	Oct. 1971
Mineral Exploration ....	Annually	1970-71	July 1972
Pasture Seed (a) ....	Annually	1970-71	Oct. 1971
Rock Lobsters Held in Cold Stores and Exported ....	Monthly	Aug. 1972	Sept. 1972
Rural Land Utilisation (a) ....	Annually	1970-71	Aug. 1971
Sheep, Lambing and Wool Clip (a) ....	Annually	1971-72	Sept. 1972
Tractors on Rural Holdings (a) ....	Triennially	1969	Mar. 1970
Value of Primary Production (excluding Mining and Quarrying) (preliminary statement) ....	Annually	1970-71	Apr. 1972
Vegetables (a) ....	Annually	1970-71	Oct. 1971
Wheat for Grain (a) ....	Annually	1971-72	Aug. 1972
<b>TRADE (EXTERNAL)—</b>			
External Trade (Overseas and Interstate) ....	Annually	1970-71	Dec. 1971
Interstate Trade ....	Annually	1970-71	Nov. 1971
Quarterly Summary of Overseas Trade Statistics ....	Quarterly	To June 1972	Sept. 1972
<b>TRADE (INTERNAL)—</b>			
Wholesale Sales and Stocks of Wine and Brandy ....	Annually	1969-70 and 1970-71	Nov. 1971
<b>GENERAL—</b>			
Monthly Statistical Summary ....	Monthly	Sept. 1972	Sept. 1972

(a) Includes statistics for individual local government areas.

(†) New issue.

NOTE. In addition to the preceding publications, a number of bulletins which deal exclusively with this State are produced by the Commonwealth Statistician, Canberra who also issues many publications which contain particulars for Western Australia as a component of Australian totals. A complete list of all publications currently issued by the Central and the various State Offices of this Bureau appears in 'Publications of the Commonwealth Bureau of Census and Statistics' issued by the Commonwealth Statistician, copies of which are available free of charge from the Western Australian Office at the address shown on page 25.



